

FACT SHEET

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Lighting Management

Fluorescent light tubes, high intensity discharge (HID) lamps, and lamp ballasts are used in almost every residence and building, as well as in outdoor areas. These types of energy efficient lights are increasingly used to replace less efficient incandescent (heated filament) lights. However, when fluorescent tubes, HID lights, and ballasts are removed, they may require management and disposal as a hazardous waste, as they may contain regulated hazardous materials such as polychlorinated biphenyls (PCBs), mercury, or di (2-ethylhexyl) phthalate (DEHP). PCBs and mercury, when released into the environment, can build up and bioaccumulate; while DEHP shows evidence of toxicity in plants and animals. The purpose of this fact sheet is to discuss applicable federal regulations and lighting waste disposal methods.

Governing Regulations

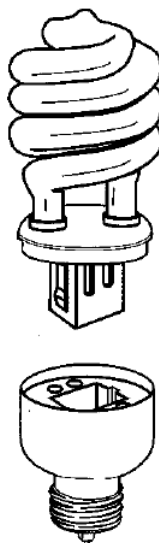
Proper management of releases and disposal of spent light tubes and lamps includes understanding federal, state, and local requirements. The U.S. Environmental Protection Agency (EPA) may regulate spent light tubes and lamps through any of the following statutes:

- ❖ Universal Waste Rule of 1995, Title 40 Code of Federal Regulations Part 273. In 1999, the EPA added spent lamps to the federal list of universal wastes governed under the Universal Waste Rule, which establishes streamlined management practices and provides relief from the full regulatory aspects of RCRA.
- ❖ Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, Title 42 USC § 9601 et seq., governs the release of PCBs, mercury, and DEHP.

- ❖ Resource Conservation and Recovery Act (RCRA) of 1976, Title 42 USC § 321 et seq., governs the management of listed hazardous waste and items characterized as hazardous waste due to their ignitability, corrosivity, reactivity, and/or toxicity.
- ❖ Toxic Substances Control Act (TSCA) of 1976, Title 15 United States Code (USC) § 2601 et seq., governs the management of PCBs

Disposal Methods

Generally, there are four methods for disposing of lighting waste depending upon whether the lamp or ballast contains PCBs, mercury, or DEHP; however, some states enforce more stringent regulations than those set by federal standards. It is the responsibility of the end user to ensure lighting waste is disposed of in accordance with all applicable state regulations.



➤ **Chemical or Hazardous Waste Landfill** - This method neither eliminates PCBs (non-leaking PCB-containing ballasts), mercury, or DEHP from the waste stream nor limits potential future generator liability under CERCLA. However, the waste is disposed in a controlled and monitored environment.

➤ **Municipal Solid Waste Landfill (MSWLF)** - This method neither eliminates chemicals from the waste stream nor limits potential future generator liability under CERCLA. Spent DEHP-containing ballasts are not considered a hazardous waste and therefore, may be disposed in a MSWLF. In addition, mercury-containing lamps generated in small quantities, or determined to be non-hazardous by the Toxicity Characteristic Leaching Procedure (TCLP), may also be disposed in a MSWLF.



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✚ **High temperature incineration** - This method is used for destroying PCBs and DEHP in ballasts, permanently removing them from the waste stream and limiting future generator liability under CERCLA.

✚ **Recycling** - Recyclers remove PCBs and DEHP from PCB-containing (non-leaking) and DEHP-containing ballasts, which are subsequently incinerated or landfilled. Usable materials, such as metals, are then reclaimed for secondary uses. For mercury, recyclers separate the mercury from the glass, aluminum, and other lamp components to be reused in manufacturing other products.

Lighting Upgrades

When upgrading a facility lighting system, several factors should be considered such as, light output, efficiency, building size/shape, and the availability of natural lighting. Many lighting manufacturers now produce environmentally friendly light tubes and lamps, which also conserve energy. For information on lighting products that meet energy guidelines and environmental concerns, visit the

Defense Logistic Agency's Lighting Catalog at <http://www.dscp.dla.mil/gi/general/light1.htm> and the EPA's Energy Star® Program at <http://www.energystar.gov/>.

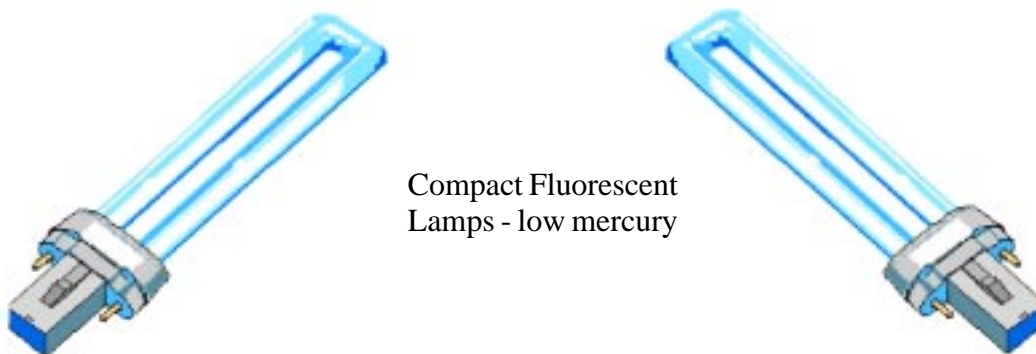
For More Information...

Additional assistance can be obtained by contacting PROACT at DSN 240-4240, (800) 233-4356, by e-mail at pro-act@brooks.af.mil, or by visiting the following websites:

☞ Lighting Research Center (LRC), EPA sponsored:
<http://lighting.lrc.rpi.edu/>

☞ Hybrid Lighting Research and Development Program, Department of Energy partner:
<http://www.ornl.gov/hybridlighting/index.html>

☞ Lighting Systems Research Group, Department of Energy partner:
<http://eande.lbl.gov/btp/lsr/>



Compact Fluorescent
Lamps - low mercury

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